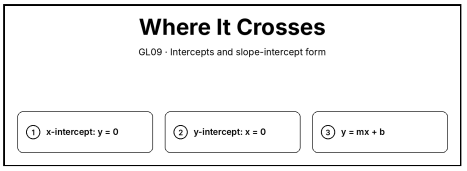
Where It Crosses: teacher script

GL09-V1 · GL09 Intercepts and slope-intercept form · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 69 seconds as a video.

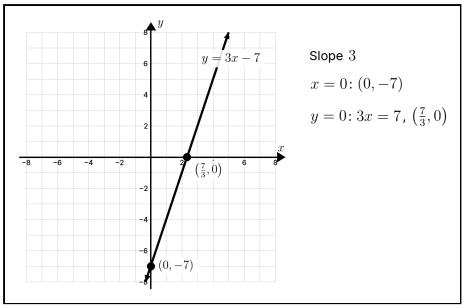
01



Say. Intercepts. For the x intercept, y is 0. For the y intercept, x is 0. And in y equals m x plus b, you can read the slope and the y intercept.

Draw. Write the title “Where It Crosses” and the steps: 1. x-intercept: y = 0; 2. y-intercept: x = 0; 3. y = mx + b.

02



Say. Take y equals 3 x minus 7. The slope is 3. Put x equal to 0 for the y intercept, the point 0, negative 7. Put y equal to 0 for the x intercept: 3 x equals 7, so the point 7 thirds, 0.

Draw. Clear the board and draw a grid with axes from -8 to 8. Plot (0, -7) and label it “(0, −7)”. Plot (7/3, 0) and label it “(7/3, 0)”. Draw the line 3x − y = 7, labelled “y = 3x − 7”. Beside the grid, write “Slope 3”. Beside the grid, write “x = 0: (0, −7)”. Beside the grid, write “y = 0: 3x = 7, (7/3, 0)”.

03

Trap $y = 2x + 3$

✗ x-intercept $(0, 3)$

✓ x-intercept $\left(-\frac{3}{2}, 0\right)$

Say. Watch for the trap: swapping the intercepts. On the x axis, y is 0: the x intercept of y equals 2 x plus 3 is negative 3 halves, 0.

Draw. Clear the board. Write “Trap” and y = 2x + 3. Below, write x−intercept (0, 3) and cross it out ×. Then write x−intercept (−3/2, 0) with a tick ✓.

04

The slope of $3x - 5y = 7$.

Say. What is the slope of 3 x minus 5 y equals 7?

Draw. Clear the board. Write “The slope of 3x − 5y = 7.” in a box at the top.

05

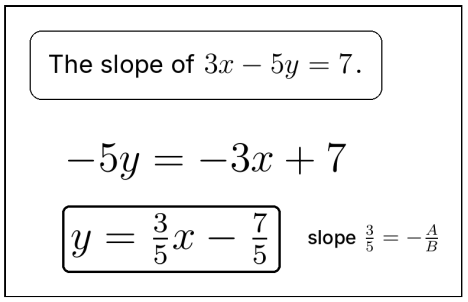
The slope of $3x - 5y = 7$.

$$-5y = -3x + 7$$

Say. Solve for y. Take away 3 x: negative 5 y equals negative 3 x plus 7.

Draw. Write −5y = −3x + 7 on the next line.

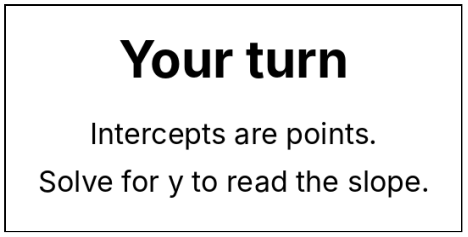
06



Say. Divide by negative 5: y equals 3 fifths x minus 7 fifths. The slope is 3 fifths: negative A over B.

Draw. Write y = 3/5x − 7/5 and box it on the next line. Beside it, write “slope 3/5 = −A/B”.

07



Say. Now it is your turn. Intercepts are points, and solve for y to read the slope.

Draw. Point to today’s activity: Intercepts are points. Solve for y to read the slope.